

REMARKSSTATUS OF THE CLAIMS

[0001] The Office Action rejected Claims 1-3, 6, 9, 13-18, 21, 22, 26 and 28, under 35 U.S.C. §102(e) as being anticipated by *Yamagami* (U.S. Patent Application Publication No. US 2004/0268067, hereinafter "*Yamagami*"). The Office Action rejected Claims 4, 5, 7, 8, 15, 19, 20, 23-25, 27, 29 and 30 under 35 U.S.C. §103(a) as being obvious over *Yamagami* in view of *Tzelnic* (U.S. Patent No. 6,366,987, hereinafter "*Tzelnic*"). The Office Action rejected Claims 10-12 under 35 U.S.C. §103(a) as being obvious over *Yamagami* in view of *Berkowitz* (U.S. Patent No. 6,826,666, hereinafter "*Berkowitz*"). The Office Action rejected Claims 26-30 under 35 U.S.C. §103(a) as being obvious over *Yamagami* in view of "Structured Computer Organization" 2nd edition, by Tanenbaum (hereinafter "*Tanenbaum*"). The Office Action objected to Claims 11, 13-16 for not reciting proper dependency and Claim 29 for being a substantial duplicate of Claim 27.

[0002] Applicants are amending Claims 11, 13-16, and 29 to resolve the dependency and duplication informalities. No new matter is introduced.

[0003] Applicants respectfully request reconsideration of Claims 1-30 in light of the submitted amendments and remarks. For the reasons set forth below, the Applicants respectfully request withdrawal of the rejections and allowance of Claims 1-30.

RESPONSE TO REJECTION OF CLAIMS 1-3, 6, 9, 13-18, 21, 22, 26 and 28 UNDER 35**U.S.C. §102(e)****Claim 1**

[0004] Independent Claim 1 stands rejected as anticipated by *Yamagami*. The Examiner bears the initial burden of establishing a *prima facie* case of anticipation. *In re Warner*, 379 F.2d 1011, 1016 (C.C.P.A. 1967). "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP §2142.

[0005] Applicants respectfully assert that *Yamagai* fails to describe, either expressly or inherently, each and every element of Claim 1. Specifically, *Yamagami* fails to teach partitioning of an incremental log into an additional snapshot partition.

[0006] Claim 1 recites "...a partition module configured to automatically **partition the incremental log** into an additional **snapshot partition** in response to a snapshot operation." The Office Action suggests that *Yamagami* teaches this element at ¶ 55 and 56. Applicants respectfully disagree with this interpretation because such an interpretation fails to give proper weight to each term in Claim 1. Specifically, the Office Action interpretation seems to ignore the noun "partition" in the phrase "snapshot partition." In addition, the Office Action interpretation seems to ignore the verb "partition" and the object of the partition action, the "incremental log," in the phrase "partition the incremental log." Applicants submit that these oversights are significant limitations of Claim 1 and distinctions over the *Yamagami* reference.

[0007] *Yamagami* teaches that “applications will read and/or write data to storage media contained in data volumes,” and “snapshots” of these application data volumes are taken for data recovery purposes. *Yamagami* ¶ 27, 30. Applicants note that *Yamagami* uses the term “snapshot” in accordance with the understanding of those of skill in the art and in the context of taking an actual data image (or copy) of an application data volume. The snapshot data image is taken and preserves a set of data as a whole indivisible unit with respect to storage data. The “snapshot” in *Yamagami* is made in one single operation and represents an exact copy or “mirror” of a single state of the data volume being copied at a single point in time.

[0008] In contrast, while the present invention uses the term “snapshot,” Claim 1 uses the term snapshot as an adjective for the noun “partition.” Partition means “a portion of a larger whole” under a plain meaning interpretation and to one of skill in the art. MPEP §2111.01. Partitions may be made to represent boundaries on a storage device to keep data separate for various reasons, i.e. different operating systems, different storage data types, different users, different points in time etc. For example, the snapshot partitions of the present invention serve to delineate groups of log entries within an incremental log pursuant to policies (such as specified time intervals i.e. “snapshot intervals”) which can be set by a database administrator to help “reduce the complexity of managing and accessing point-in-time copies of a particular volume.” *Present Application publication number 20050091461 (hereinafter “Present Application”)* ¶ 39, 41, 42 and Claims 3 and 6. In the present invention, a “snapshot partition” does not contain a single, indivisible copy or “snapshot” of a data volume as taught in *Yamagami*. Rather, a “snapshot partition” of the present invention

contains a collection of incremental log entries that together with a single baseline image comprise multiple versions of the source data volume as it is modified over time (i.e. within a snapshot interval). *Present Application* ¶ 41, 62.

[0009] *Yamagami* teaches “It is possible that a **snapshot image** will be segmented or otherwise **partitioned** and stored in more than one snapshot volume.” *Yamagami* ¶ 56. Applicants reiterate that *Yamagami* uses the term “snapshot image” in accordance with the understanding of those of skill in the art and in the context of taking an actual data image (or copy) of an application data volume. The snapshot data image is taken and later *Yamagami* teaches partitioned snapshot image, rather than a snapshot partition as recited in Claim 1.

[0010] Applicants submit that partitioned snapshot and a snapshot partition are fundamentally different. As *Yamagami* teaches, a partitioned snapshot is a single snapshot of a data volume that is divided up. *Yamagami* ¶ 56. A snapshot partition is a partition, a smaller part of a larger whole. In the present invention, the larger whole is the incremental log, as explained below. As explained above, a snapshot partition is a partition that together with a single baseline image represents a snapshot of the source data volume. Applicants submit that a snapshot partition is not a snapshot. Instead, the snapshot partition is an intermediate form of data that can be transformed into a snapshot through either reading log entries into the baseline image to form a snapshot of the data at a single point in time or by compaction of a snapshot partition into the baseline image to form a new baseline image (i.e. snapshot). *Present Application* ¶ 17, 50, 60, 62 and 63. This transformation process is specifically recited in Claims 4 and 8. The snapshot partition may be more clearly defined as

a “deferred snapshot” in that all the parts for generating a snapshot are present but the single whole, which is the snapshot, has not yet been created.

[0011] Finally, where *Yamagami* teaches partitioning of a snapshot, the present invention teaches “**partition[ing] the incremental log into an additional snapshot partition.**” *Present Application* Claim 1. Again, Applicants submit that an “incremental log” and a “snapshot” are fundamentally different. An incremental log is a collection of write operations within an incremental storage device. *Present Application* ¶ 41 and 48. *Yamagami* fails to teach partitioning of an incremental log as recited in Claim 1. As noted above, the incremental log of the present invention does not contain “snapshots” of data as taught by *Yamagami*. Rather, the present invention divides the incremental log (which contains log entries, not images of data or “snapshots” of data) into partitions, which are referred to in Claim 1 as “snapshot partitions.” Each snapshot partition delineates a group of log entries recorded over a given time interval and contains a collection of incremental log entries that together with a single baseline image may be transformed into a snapshot, as needed. *Present Application* ¶ 62. Partitioning the incremental log into snapshot partitions in this manner can help an administrator “reduce the complexity of managing and accessing point-in-time copies of a particular volume.” *Present Application* ¶ 39, 42.

[0012] Accordingly, *Yamagami* fails to teach all of the elements of the present invention. Specifically, *Yamagami* fails to teach **partitioning of an incremental log into an additional snapshot partition.**

Independent Claims 12, 17, 21, 22, 26

[0013] For the reasons cited above, Applicants respectfully submit that Claim 1 of the present invention is not anticipated by *Yamagami*. Applicants submit that independent Claims 12, 17, 21, 22 and 26 contain similar limitations to Claim 1 and are allowable for at least the same reasons given above with respect to Claim 1.

Dependent Claims 2-11, 13-16, 18-20, 23-25, and 27-30

[0014] Applicants assert that dependent Claims 2-11, 13-20, 18-20, 23-25 and 27-30 are allowable as dependent upon allowable Claims 1, 12, 17, 22 or 26.

**RESPONSE TO REJECTION OF CLAIMS 4, 5, 7, 8, 10-12, 15, 19, 20, 23-25 and 26-30
UNDER 35 U.S.C. §103(a)**

[0015] Dependent Claims 4, 5, 7, 8, 15, 19, 20, 23-25, 27, 29 and 30 stand rejected as obvious over *Yamagami* in view of *Tzelnic*. Claims 10-12 stand rejected as obvious over *Yamagami* in view of *Berkowitz*. Claims 26-30 stand rejected as obvious over *Yamagami* in view of *Tanenbaum*. The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. MPEP §2142. The prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP §2142. In addition, even if all the claim limitations are taught or suggested by the prior art references, there must be some suggestion or motivation to combine reference teachings to establish obviousness. MPEP §2142.

[0016] Applicants respectfully assert that for the reasons stated above with respect to anticipation, independent Claims 1, 12, 17, 21, 22 and 26 are allowable and not anticipated

by *Yamagami*. *Yamagami* fails to teach or suggest all the elements of the independent Claims 1, 12, 17, 21, 22 and 26. Applicants submit that neither *Tzelnic*, *Berkowitz*, nor *Tanenbaum* teach or suggest the elements of the independent claims lacking in *Yamagami*. Specifically, *Tzelnic*, *Berkowitz* and *Tanenbaum* fail to teach or suggest “a partition module configured to automatically partition an incremental log into an additional snapshot partition.” Applicants find no mention of “snapshot partition” in *Tzelnic*, *Berkowitz*, or *Tanenbaum*. Applicants further submit that Claims 4, 5, 7, 8, 10, 11, 15, 19, 20, 23-25 and 27-30 depend from allowable Claims 1, 12, 17, 21, 22 or 26 and as such are not obvious.

[0017] Finally, even if all the claim limitations are taught or suggested, there must be some suggestion or motivation to combine reference teachings. See MPEP § 2142. This suggestion or motivation to combine references must be established by factual findings. “The factual inquiry whether to combine references must be thorough and searching. (quoting *McGinley v. Franklin Sports, Inc.* 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001)).

[0018] Applicants assert that because the Examiner has not provided evidence of teachings or suggestions of partitioning an incremental log into additional snapshot partitions, the Examiner has also failed to provide evidence why one of skill in the art would select the prior art references or combine them. Therefore, this further supports Applicant’s assertion that claims 4, 5, 7, 8, 10-12, 15, 19, 20, 23-25 and 26-30 are allowable under 35 U.S.C. §103(a) over the prior art of record.

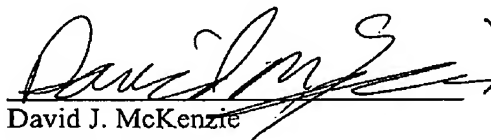
[0019] Because *Tzelnic*, *Berkowitz* and *Tanenbaum* fail to provide any teaching or suggestion of the elements of “partition[ing] the incremental log into additional snapshot

partitions" Applicants respectfully assert that claims 4, 5, 7, 8, 10-12, 15, 19, 20, 23-25 and 26-30 are allowable.

CONCLUSION

[0020] In view of the foregoing, Applicants submit that the application is in condition for allowance. In the event any questions or issues remain that can be resolved with a phone call, Applicants respectfully request that the Examiner initiate a telephone conference with the undersigned.

Respectfully submitted,



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